

REMARKS

The Applicants wish to thank the Examiner for withdrawing the rejections based on § 102 and § 103. No amendments are being made herein. Claims 1-29 and 49-50 remain pending in the application. The Applicants have carefully considered all of the Examiner's rejections and remarks but respectfully submit that the claims are allowable for at least the following reasons.

Rejections under § 112 – Written Description

The Examiner rejected Claims 1-29 and 49-50 under 35 U.S.C. § 112, ¶ 1 for lack of written description. The Examiner asserted that the specification lacked written description for the claimed recitation that the transmembrane potential changes predominantly in a single direction away from a starting transmembrane potential over the course of a series of electric fields due to a continuing and additive accumulation of charge in a cell.

The Applicants respectfully submit that the specification as filed contains adequate written description for this recitation. For example, at page 36, lines 7-9, the specification states that “[b]y applying a repetitive train of electrical stimuli, separated by a time interval smaller than the membrane time constant, large sustained membrane voltage changes can be created via a stepwise accumulation or loss of ions.” Furthermore, the Applicants point to Figure 4 of the specification, which illustrates the applied electric potential (E), sodium current into the cell (I_{Na}), and transmembrane potential (V_m). *See also* Specification, page 36, line 15 to page 39, line 2. The figure illustrates a series of electric field pulses being applied (plot of E). The series of pulses results in only **positive** sodium current pulses (plot of I_{Na}). Those of skill in art would recognize that the positive sodium current pulses necessarily imply a continuing and additive accumulation of charge in the cell due to accumulation of sodium ions. Finally, Figure 4 demonstrates that the accumulation of charge results in the transmembrane potential changing predominately in a single direction (e.g., in the positive direction in Figure 4) over the course of the applied electric field pulses (plot of V_m). The specification concludes its description of Figure 4 by stating that “[d]uring subsequent rounds of electrical stimulation, positive charge is steadily accumulated into the cell raising the average transmembrane potential in approximately stepwise fashion with each repetition of electrical stimulation.” Thus, the specification discloses a series of electric fields (“rounds of electrical stimulation”) that results in a transmembrane potential change in a single direction (“raising the average transmembrane potential in

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approximately stepwise fashion”) due to a continuing and additive accumulation of charge (“positive charge is steadily accumulated into the cell”).

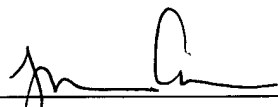
“The subject matter of [a] claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement.” M.P.E.P. § 2163.02. It is sufficient that the claim limitations “be supported in the specification through express, implicit, or inherent disclosure.” M.P.E.P. § 2163(I)(B). The above discussed description in the specification as well as Figure 4 provide such sufficient disclosure of the claim limitation of a transmembrane potential changing predominantly in a single direction away from a starting transmembrane potential over the course of a series of electric fields due to a continuing and additive accumulation of charge in a cell. Accordingly, the Applicants respectfully submit that Claims 1-29 and 49-50 are patentable and request a timely issuance of a Notice of Allowance.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 1/7/05

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